

Evaluation of a Sexual Assault Education/Prevention Program for Male U.S. Navy Personnel

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ABSTRACT A randomized clinical trial was conducted to evaluate the effectiveness of the Navy Sexual Assault Intervention Training (SAIT) program for men. A four-group Solomon design was used to control for possible pretest sensitization effects. Male Navy personnel ($N = 1,505$) were assessed for rape knowledge, rape myth acceptance (two scales), and rape empathy after participating in the SAIT program or viewing an educational video about HIV/AIDS (comparison condition). The SAIT program was found to be effective in increasing rape knowledge, reducing rape myth acceptance, and increasing empathy for rape victims. As expected, men who had exhibited previous coercive sexual behavior, compared with those who had not, reported lower levels of knowledge, higher levels of rape myth acceptance, and less rape empathy. However, the SAIT program was generally effective in changing men's knowledge, beliefs, and feelings on the key measures, regardless of participants' histories of coercive sexual behavior.

INTRODUCTION

Studies of incoming male Navy recruits indicate that between 13% and 15% self-report perpetrating premilitary rape or attempted rape.^{1,2} High rates of premilitary sexual assault among male Navy recruits are of great concern because men who have previously engaged in sexual aggression are likely to do so again.³⁻⁵ In fact, McWhorter and colleagues found that men who reported a premilitary history of rape perpetration, compared with those who did not, were nearly 10 times more likely to commit rape or attempted rape during their first year of military service.⁶

To address the problem of sexual assault, in 1994 the Navy developed and implemented the Sexual Assault Victim Intervention (SAVI) program.⁷ The SAVI program provides education to increase awareness of sexual assault and trains advocates to provide support for victims and their families. Concurrent with the development and implementation of the SAVI, the Bureau of Naval Personnel invested in the development of intensive group-based sexual assault prevention programs; this effort resulted in separate Sexual Assault Intervention Training (SAIT) for male and female sailors. SAIT programs were developed to complement the SAVI program by providing state-of-the-art manualized trainings for

men and women that were empirically based and specifically tailored for relevance and applicability to the Navy context.

The present report describes the SAIT program for men and presents the results of a randomized, controlled clinical trial to evaluate the effectiveness of the program. (A separate report describes and evaluates the SAIT program for women.)⁸ The effectiveness of the SAIT was assessed with respect to men's factual knowledge about rape, their endorsement of rape myths, and their empathy for rape victims. These outcomes were selected because they have been shown to predict male sexual assault perpetration.^{9,10} To control for possible pretest sensitization effects, a four-group Solomon design (2 [condition: SAIT/comparison] \times 2 [pretesting: yes/no]) was used.¹¹ In addition, because men who have previously engaged in sexual coercion are likely to hold more rape-supportive attitudes and beliefs,^{9,10} we examined whether the effectiveness of the SAIT program varied for men with vs. without a history of sexually coercive behavior.

METHODS

Participants

Participants were male U.S. Navy personnel who had completed basic training within the past 90 days and were awaiting service school training at Naval Station Great Lakes, Illinois. Of the 1,546 men who arrived at a study session, 41 (3%) declined to participate, leaving a final sample of 1,505 men. Men in the SAIT condition were significantly more likely than men in the comparison condition to attrite (4% vs. 1%), $\chi^2 (1, N = 1,546) = 15.10, p < .001, \Phi' = .10$. Rates of attrition did not differ for pretested vs. nonpretested groups, $\chi^2 (1, N = 1,546) = 3.70, ns$.

Participants ranged from 17 to 37 years of age ($M = 20.00, SD = 2.90$). Most (89%) were single. Two-thirds of the sample had 12 years of education, and 29% had more. The majority

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14. ABSTRACT A randomized clinical trial was conducted to evaluate the effectiveness of the Navy Sexual Assault Intervention Training (SAIT) program for men. A four-group Solomon design was used to control for possible pretest sensitization effects. Male Navy personnel {N = 1,505} were assessed for rape knowledge, rape myth acceptance (two scales), and rape empathy after participating in the SAIT program or viewing an educational video about HIV/AIDS (comparison condition). The SAIT program was found to be effective in increasing rape knowledge, reducing rape myth acceptance, and increasing empathy for rape victims. As expected, men who had exhibited previous coercive sexual behavior, compared with those who had not, reported lower levels of knowledge, higher levels of rape myth acceptance, and less rape empathy. However, the SAIT program was generally effective in changing men's knowledge, beliefs, and feelings on the key measures, regardless of participants' histories of coercive sexual behavior.					
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(65%) of the sample were White (12% African American, 10% Hispanic, 4% Asian American, 2% Native American, and 7% "other"). No demographic factor varied significantly by condition (SAIT/comparison) or pretesting (yes/no).

Instruments and Educational Materials

Men's history of sexually coercive behavior was assessed by the Sexual Experiences Survey (SES).¹² The SES describes 10 different forms of forced or coerced sexual experiences with women, ranging from unwanted touching or kissing to behaviors constituting completed rape (although the term "rape" is never used). Men were asked how often they had performed each behavior since age 14. On the basis of their responses, men were classified in terms of whether they had been sexually coercive (across 10 items) and whether they had ever perpetrated rape (across 3 items).

The outcome measures included a measure of rape knowledge, two measures of rape myth acceptance, and a measure of rape empathy. The USN Rape Knowledge Scale (RKS) was developed for the present study on the basis of material presented in the sexual assault intervention. It consists of 14 factual questions, each with 5 multiple-choice response options. The number of correct responses was summed to create a total RKS score (theoretical range: 0–14 points).

Two scales assessed acceptance of common myths about rape: The 11-item Rape Myth Acceptance Scale (RMAS; Burt, 1980) and the 19-item Rape Myth Scale (RMS; Lonsway and Fitzgerald, 1995).^{13,14} For both scales, items are rated using a 7-point agree/disagree response format, and responses are summed to compute total scale scores (theoretical range for the RMAS, 11–77; for the RMS, 19–133). Higher scores on both scales indicate greater rape myth acceptance. Internal consistencies for the RMAS were .72 (pretest) and .82 (post-test); for the RMS, they were .92 and .93, respectively.

The 19-item Rape Empathy Scale (RES; Dietz, Blackwell, Daley, and Bentley, 1982) assesses empathy for rape victims vs. rapists.¹⁵ Each item consists of a pair of statements, one representing the psychological perspective of a rape victim and the other representing the perspective of a rapist. Respondents choose the statement from each pair that best reflects their own beliefs and rate their preference for that statement (1 = no preference, 7 = strong preference). Item responses are then recoded to a 14-point scale (1 = strong preference for the rapist perspective, 14 = strong preference for the victim perspective). Total RES scores are computed by summing item responses (theoretical range: 19–266), with higher scores indicating greater empathy with rape victims. Internal consistency estimates were .79 at pretest and .84 at post-test.

Sexual Assault Intervention Training Program for Men

The SAIT program consisted of a lecture supplemented by 57 slides, two 3-minute discussion opportunities, 3 audio dramatizations, and 25 minutes of the film "When a Kiss Is Not Just a Kiss: Sex Without Consent." The program focused on acquaintance sexual assault perpetrated by men on women

and covered military definitions of sexual assault and Uniform Code of Military Justice regulations concerning the consequences of sexual assault. In addition, it provided participants with information about the frequency of acquaintance sexual assault and asked them to consider the likelihood that they knew a woman who had experienced sexual assault; examined and debunked common rape myths; discussed differences in the perspectives of the woman and man in potential sexual assault situations, emphasizing the fact that men often misread sexual cues; described different tactics that constitute coercive sexual behavior; introduced and developed the concept of mutually uncoerced consent, and provided specific strategies for obtaining it; highlighted the possible effects of peer pressure on men's sexual aggression and offered suggestions for intervening when other men are observed in potential sexual assault situations; and provided suggestions for aiding victims of sexual assault.

Comparison Education Program

Participants in the comparison condition viewed an educational videotape titled, "Conditions of Secrecy: A Video Drama about AIDS and Youth." The videotape dramatized what happened after a male college student contracted HIV through a casual sexual encounter. The film was edited to be equal in length to the SAIT program. A movie on the topic of HIV/AIDS was selected because, like the SAIT program, it contained sexual content. However, unlike the SAIT program, it did not address sexual assault.

Procedure

Commanders referred male Navy personnel to sessions occurring at prearranged times. Unknown to commanders, each session had been randomly assigned to one of four groups, derived by crossing condition (SAIT/comparison) with pretesting (yes/no). Those who elected not to participate returned to their commanders for an alternative assignment.

Sessions were conducted by two civilian men. Participants assigned to receive pretests completed the outcome measures before the intervention (SAIC or comparison); all participants completed the outcome measures after the intervention (post-test). The first time respondents completed the outcome measures (whether at pretest or post-test), the measures were embedded within a larger set of instruments that included demographic items and the SES.

A total of 68 sessions were conducted across an 18-month period. The number of participants in each session (range: 4–70, $M = 22.10$, $Mdn = 20$) did not significantly vary by condition, pretesting, or their interaction, $F_s(1, 64) \leq 2.85$, ns. Overall, 786 men participated in the SAIT program (410 with pretesting, 376 without), and 719 participated in the comparison program (427 with pretesting, 292 without).

Analytic Strategy

Analyses were conducted using the PASW (formerly SPSS) software package.¹⁶ Primary hypotheses were tested using analysis of variance (ANOVA). Social scientists generally concur

that parametric tests such as ANOVA may meaningfully be conducted on ordinal data including rating scale data.^{17,18} The effectiveness of SAIT was tested in two ways: by comparing post-test scores of men who participated in the SAIT vs. comparison conditions (regardless of whether they completed a pretest), and by examining changes over time (i.e., pretest to post-test) among participants who were assigned to complete a pretest. In addition to reporting the results of *F* tests, we provide generalized eta squared (η^2_G) as an index of effect size. This statistic estimates the percentage of variance in the outcome accounted for by a given effect.^{19,20} It has been suggested that an η^2_G value of .02 be considered small; .13, medium; and .26, large.²⁰ For categorical variables, the effect size measure was phi prime (Φ'); values of .10, .30, and .50 are considered small, medium, and large, respectively.²¹

RESULTS

Overall, nearly 1 in 5 men (20%) reported engaging in some form of coercive sexual behavior, and 4% admitted prior rape of a woman. Descriptive statistics for the outcome measures at pretest are provided in Table I. On average, respondents

TABLE I. Means and Pearson Correlations Between Outcome Measures at Pretest

Dependent Measure	RKS	RMAS	RMS	RES
RMAS	-.24			
RMS	-.23	.71		
RES	.22	-.60	-.69	
<i>M</i>	6.73	25.65	45.07	217.69
<i>SD</i>	1.90	8.43	19.43	27.15
<i>N</i>	835	831	823	772

RKS, Rape Knowledge Scale; RMAS, Rape Myth Acceptance Scale; RMS, Rape Myth Scale; RES, Rape Empathy Scale. All correlations were significantly different from zero ($p < .001$).

correctly answered half of the rape knowledge items and evidenced relatively low acceptance of rape myths and relatively high levels of empathy with rape victims.

Preliminary comparisons assessed the equivalency of men in SAIT and comparison conditions at pretest (among pretested participants). Men in the SAIT and comparison conditions did not initially differ in terms of their scores on the outcome measures, $F_s \leq 3.80$, ns, $\eta^2_G < .01$. However, men in the SAIT condition were significantly more likely than those in the comparison condition to report that they had previously engaged in both sexually coercive behavior (26% vs. 20%) and rape (6% vs. 2%), $\chi^2 \geq 5.28$, $p < .05$, $\Phi' s = .08$. To control for this initial difference, all subsequent analyses included history of all sexually coercive behaviors (including rape) as a factor.

Post-Test Scores

To examine whether post-test scores varied by condition, and whether any effects of condition were moderated by pretesting or previous sexual coercion, a series of 2 (condition) \times 2 (pretesting) \times 2 (previous sexual coercion) ANOVAs was conducted. The predicted effects of condition were statistically significant for each of the outcome measures (see Table II). Following the intervention, men in the SAIT condition compared with men in the comparison condition had greater rape knowledge, were less accepting of rape myths, and had greater empathy with rape victims. The main effect of sexual coercion history was also significant for all outcomes. Not surprisingly, men with a history of sexual coercion, compared with those without such a history, exhibited lower levels of rape knowledge, greater acceptance of rape myths, and less rape empathy (see Table II). For knowledge, differences based on condition were larger than differences based on sexual coercion history; for the other outcome variables, however, sexual coercion groups differed more than intervention groups (see Table II).

TABLE II. Differences in Primary Outcome Measures at Post-Test by Condition and Sexual Coercion History

Measure	Condition				Sexual Coercion History			
	SAIT	Comp	<i>F</i>	(η^2_G)	Yes	No	<i>F</i>	(η^2_G)
Knowledge								
<i>M</i>	9.95	6.81	574.07***	(.389)	8.43	8.45	4.17*	(.002)
(<i>SD</i>)	(2.03)	(1.91)			(2.68)	(2.48)		
<i>N</i>	776	716			293	1,199		
Rape Myth Acceptance								
<i>M</i>	22.65	24.70	8.77**	(.012)	26.57	22.92	35.62***	(.03)
(<i>SD</i>)	(8.95)	(9.44)			(10.92)	(8.64)		
<i>N</i>	772	709			290	1,191		
Rape Myth Scale								
<i>M</i>	41.42	43.36	4.60*	(.003)	50.84	40.33	76.09***	(.053)
(<i>SD</i>)	(18.31)	(20.09)			(21.50)	(18.04)		
<i>N</i>	763	699			281	1,181		
Rape Empathy Scale								
<i>M</i>	222.81	220.11	4.44*	(.002)	208.77	224.63	81.69***	(.052)
(<i>SD</i>)	(28.84)	(29.64)			(33.87)	(27.11)		
<i>N</i>	702	649			266	1,085		

* $p < .05$; ** $p < .01$; *** $p < .001$.

The main effect of pretesting was statistically significant for the RMS and the RES, $F_s \geq 12.62$, $p < .001$, $\eta^2_G = .01$. Men who had completed a pretest, compared to those who had not, displayed less acceptance of rape myths ($M_s = 41.23$ and 43.74 , respectively) and greater rape empathy ($M_s = 223.21$ and 219.35 , respectively) at post-test. Importantly, neither pretesting nor history of sexual coercion modified the effect of condition for any of the four outcome measures, $F_s \leq 3.20$. This indicates that the SAIT program was equally effective for men with and without a history of sexually coercive behavior, and regardless of whether men were assigned to complete a pretest before the intervention.

One interaction effect was significant: the pretesting \times previous sexual coercion interaction for the RES, $F(1, 1,343) = 11.94$, $p < .001$, $\eta^2_G = .008$. Among men with no history of sexual coercion, rape empathy scores at post-test were unrelated to pretest completion ($M_{\text{pretest}} = 225.78$; $M_{\text{no pretest}} = 223.30$). In contrast, for men with a history of sexual coercion, post-test rape empathy scores were higher among men who completed the pretest ($M = 214.46$) than among those who did not ($M = 198.53$).

Changes Over Time

To examine changes in rape knowledge and attitudes from pretest to post-test, a series of 2 (condition) \times 2 (previous sexual coercion) \times 2 (time: pretest/post-test) mixed-effects ANOVAs was conducted. By design, these analyses included only participants who were assigned to complete a pretest. As in the previous analysis, men with a history of sexual coercion, compared with those without such a history, exhibited greater acceptance of rape myths (on both measures) and less rape empathy, $F_s \geq 28.57$, $p < .001$. However, rape knowledge was unrelated to history of sexual coercion, $F(1, 822) = 1.49$, ns.

The main effect of condition was significant only for the RKS ($F = 555.16$, $p < .001$, $\eta^2_G = .113$), whereas the main

effect of time was significant for all four outcomes ($F_s \geq 69.24$, $p < .001$, $.10 \leq \eta^2_G \leq .15$). However, for every outcome measure these main effects were modified by the predicted condition \times time interaction (see Table III). In each case, changes in scores from pretest to post-test were significantly greater for men in the SAIT condition than for men in the comparison condition. Although this effect was moderate in size for knowledge, it was small for the other outcomes (see Table III).

One additional effect was statistically significant: The time \times previous sexual coercion interaction for the RMAS, $F(1, 809) = 4.05$, $p < .05$. The reduction in RMAS scores from pretest to post-test was more pronounced among men who had no history of sexually coercive behavior ($M_s = 24.83$ and 22.16 , respectively) than among men with a history of sexual coercion ($M_s = 28.38$ and 26.48 , respectively). However, although statistically significant, this effect was extremely small ($\eta^2_G < .001$).

DISCUSSION

Overall, the present findings regarding the utility of the SAIT program for men are promising. Across both between- and within-subjects analyses, the SAIT was shown to increase men's rape knowledge, reduce their endorsement of rape myths, and increase their empathy for rape victims. Collectively, these findings are compelling because rape knowledge, rape myth acceptance, and rape empathy have all been associated with the likelihood of male perpetration of sexual assault.^{9,10}

The finding that the SAIT program successfully increased men's knowledge and reduced their acceptance of rape myths is consistent with what would be expected on the basis of evaluations of previous sexual assault prevention programs. A meta-analytic review found that interventions that include information about rape generally have a positive impact on rape knowledge and rape myths.²² However, the results of this meta-analysis also indicated that most programs have not been

TABLE III. Differences in Outcome Measures From Pretest to Post-Test

Measure	SAIT		Comparison		Condition \times Time	
	Pre	Post	Pre	Post	<i>F</i>	(η^2_G)
Knowledge					596.53*	(.151)
<i>M</i>	6.61	9.88	6.85	6.89		
SD	1.91	1.98	1.87	1.95		
<i>N</i>		402		424		
Rape Myth Acceptance					35.75*	(.008)
<i>M</i>	26.05	21.92	25.24	24.30		
SD	8.37	9.04	8.47	9.68		
<i>N</i>		395		418		
Rape Myth Scale					23.09*	(.002)
<i>M</i>	46.42	40.66	43.29	41.26		
SD	19.56	18.36	19.07	19.77		
<i>N</i>		392		406		
Rape Empathy Scale					10.12*	(.002)
<i>M</i>	216.04	223.85	219.63	222.54		
SD	27.72	29.58	26.18	29.31		
<i>N</i>		353		374		

* $p < .001$.

successful at changing participants' empathy levels. Thus, the finding that the SAIT program increased men's empathy for rape victims is noteworthy.

There are several limitations to the present study. First, the current findings should be replicated before definitively concluding that the intervention is effective. Second, use of a self-report measure, the SES, to assess sexually coercive behavior raises concerns about socially desirable responding and under-reporting. Although these issues are unavoidable in studies using self-reports (and there is no good alternative to self-reports in the present context), there is some evidence that social desirability effects on responses to the SES are minimal.^{23,24} In addition, as should be expected for a one-session program, effects of the SAIT were generally small. However, it is important to bear in mind that these effects do not represent the absolute effectiveness of the SAIT. Instead, because the SAVI program was implemented before the SAIT, the current effect size estimates might be interpreted as reflecting the incremental impact of adding more intensive SAIT group training to existing SAVI programs. Future research could examine whether repeated exposure to the SAIT program (e.g., annually) increases the magnitude of observed changes.

The present study also has several strengths. One is the use of a Solomon four-group design to examine and control for possible pretest sensitization effects. In fact, evidence of pretest sensitization was observed for two of the outcome measures. In both cases, individuals who had been pretested showed more desirable post-test scores than those who had not. This effect, however, was independent of intervention condition, and thus does not modify conclusions about the effectiveness of the intervention. Instead, it appears that the simple process of completing the rape myth and rape empathy measures twice (regardless of what occurred in the interim) resulted in improvements in both rape myth endorsement and rape empathy. Another strength was the examination of whether the effectiveness of the SAIT program varied for men with vs. without a history of sexually coercive behavior. Consistent with previous research, men with a history of sexual coercion generally were more likely to endorse rape myths and exhibited less empathy for rape victims.^{9,10} Nonetheless, results indicate that the SAIT was equally effective at increasing rape knowledge and empathy and reducing rape myth acceptance for men with and without a history of sexual coercion.

Rates of sexual coercion reported by men in the present study (20% for sexual coercion, 4% for rape) are substantially lower than the rates reported for previous samples of male Navy recruits.^{1,2} Because previous studies and the present study used the same self-report measure (i.e., SES) to assess sexually aggressive behavior, differences in rates cannot be attributed to differences in the reactivity of the measures used. However, there are other possible explanations. Perhaps men with a history of sexual coercion are reluctant to participate in a sexual assault education program. Consistent with this, men in the present study were more likely to refuse participation in the SAIT (4%) than in the comparison program (1%).

However, even if every man who refused participation was a rapist, the rate of self-reported rape in the present sample would remain substantially lower than rates observed in previous Navy samples.

Another possibility is that Navy men's rates of coercive sexual behavior have declined over time. This explanation is rendered less plausible by the fact that data for the present study and for two of the previous surveys were collected within 3 years of each other. A final possibility is that the lower rate of coercive sexual behavior reported by men in the present sample, compared to those in previous samples, is due to differences between the samples. Specifically, whereas the present sample consisted of recruits who had completed basic training, previous estimates were based on recruits entering basic training. The fact that attrition is most likely to occur early in one's term of service^{25,26} raises the possibility that the two types of samples differ because sexually aggressive men are more likely to attrite. Although we know of no previous study showing a link between coercive sexual behavior and military attrition, studies have shown that military attrition is related to similar factors, including perpetration of intimate partner violence.²⁶

Although the present results are very promising regarding the effects of the SAIT program, substantial work remains to be done to fully document the usefulness and effectiveness of the program. First and foremost, it is important to conduct longitudinal research on the effects of SAIT, which would allow researchers to track the stability of changes resulting from participation in the SAIT program over time. Longitudinal research would also be helpful in determining the extent to which changes in knowledge, attitudes, and beliefs resulting from participation in the SAIT program translate into reduced likelihood of perpetrating coercive sexual behavior. Other important directions for research include examining whether the program is equally effective for different segments of the male recruit population and exploring possible mediators and moderators of program outcomes. The documented effectiveness of the SAIT program, juxtaposed with the enormity of the sexual assault problem and its consequences, argue for additional exploration of the possible utility of incorporating the SAIT program as a standard part of Navy training.

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